REPORT ON

INTERNATIONAL TRAVEL

UNDER TEQIP-II

Conference: 36th IAHR World Congress, 28 June-3 July, 2015
Delft – The Hague, the Netherlands

Venue: World Forum Convention Center
The Hague, The Netherlands

Name of the Participant	**: Dr. D.G.Regulwar**
Name of the institution	: **Government College of Engineering, Aurangabad**
Project Sub-Component	: **1.2**
Category of the Institution (CFI/Govt. Funded/ Govt. Aided/Private Unaided)	: **Govt. Funded**

Report of paper presentation in 36th IAHR World Congress, 28 June-3 July, 2015 Delft – The Hague, The Netherlands under TEQIP-II

Name of Faculty: **Dr. D. G. Regulwar**
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With reference to above subject, I have participated and presented my research paper titled "**EVALUATION OF UNCERTAINTY ESTIMATES IN DISTRIBUTED HYDROLOGICAL MODELING FOR MICRO WATERSHED IN GODAVARI RIVER IN INDIA USING SUFI-2, AND PARASOL METHODS**" in 36th IAHR World Congress, 28 June-3 July, 2015 at Delft – The Hague, The Netherlands. I have presented my paper successfully.

The objective of the present study is to apply two uncertainty analysis methods to a distributed hydrological modeling system, quantify the impact of parameter uncertainties, and examine their performance and capability. SWAT (Soil and Water Assessment Tool) is a comprehensive, semi-distributed river basin model that requires a large number of input parameters, which complicates model parameterization and calibration. Several calibration techniques have been developed for SWAT, including manual calibration procedures and automated procedures using the shuffled complex evolution method and other common methods. In addition, SWAT-CUP was recently developed and provides a decision-making framework that incorporates a semi-automated approach (SUFI2, ParaSol) using both manual and automated calibration and incorporating sensitivity and uncertainty analysis. In SWAT-CUP, users can manually adjust parameters and ranges iteratively between auto calibration runs. The user interaction or manual component of the SWAT-CUP calibration forces the user to obtain a better understanding of the overall hydrologic processes (e.g., base flow ratios, ET, sediment sources and sinks, crop yields, and nutrient balances) and of parameter sensitivity. When calibrating a physically based model like SWAT, it is important to remember that all model input parameters must be kept within a realistic uncertainty range and that no automatic procedure can substitute for actual physical knowledge of the watershed. The selected site of watershed is under overexploited stage according to CGWB report. BMP's should be implemented for the present case study for sustainable development. This micro watershed lies in Godavari river basin which flows through Paithan, Khuldabad villages of Aurangabad district Maharashtra state India. The soil and water assessment tool (SWAT) model was applied to estimate the surface runoff during 1985-2010 and validated by the observed data. Two uncertainty analysis methods were further conducted and compared within the same modeling framework: (1) the sequential uncertainty fitting algorithm (SUFI-2), and (2) the parameter solution (ParaSol) method. Through the comparison of a set of proposed evaluation criteria for uncertainty analysis methods in this study, including *R*-factor, *P*-factor, computation efficiency, and performance of best estimates, the SUFI-2 method was able to provide more reasonable and balanced predictive results. SWAT-CUP provides a

decision-making framework that incorporates a semi-automated approach (SUFI2) using both manual and automated calibration incorporating sensitivity and uncertainty analysis.

During conference, I have visited Delft University of Technology (TU Delft). About 40 % of Netherland is below sea water level. In such situation flood management is very important. The faculty of Delft University of Technology, few industries and private organizations formed a group for working for research in flood management. They have developed Flood Proof Holland techniques. The concerned faculties have shown us live demonstration of flood management and different techniques e.g. Slam Dam, Green Soil Bag. This has helped in developing research interest in our students. I have discussed with foreign delegates regarding water resources research issues which will help me for implementing research activities in our institute.

I thank TEQIP-II authorities, Higher and Technical Education Department, Mantralaya, Mumbai, Director of Technical Education, Mumbai, Joint Director, Technical Education, Regional Office, Aurangabad and Board of Management & Principal of Govt. College of Engineering Aurangabad for their support and deputing me for this conference.

(Dr.D.G.Regulwar)

Identification of rainwater harvesting structure for Yerala River using Remote Sensing and GIS

16:30 - 16:45h at Central America (level 0)

Identification of rainwater harvesting structure for Yerala River using Remote Sensing and GIS

16:45 - 17:00h at Central America (level 0)

Integration of Remotely Sensed Data into Hydrological Models to Improve for Water Quality Model in Data-Poor Region

Toyin Omotoso, Gregory Lane-Serff, Robert Young

17:00 - 17:15h at Central America (level 0)

Extensive improvement to srtm dem for the application of hydrology

Dadiyorto Wendi, Shie-Yui Liong, Yabin Sun, Chi Dung Doan

17:15 - 17:30h at Central America (level 0)

Evaluation of uncertainty estimates in distributed hydrological modeling for micro watershed in Godavari River basin in India using SUFI-2, and ParaSol methods

Dattatray Regulwar, Sonali Nagargoje

17:30 - 17:45h at Central America (level 0)

Trend analysis of climatic variables and their impact on stream flow using NAM Model

Prem Lal Patel, Viraj Loliyana

16:00 - 17:30h at North America (level 0)

13I. Extreme events - Lessons Disaster


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